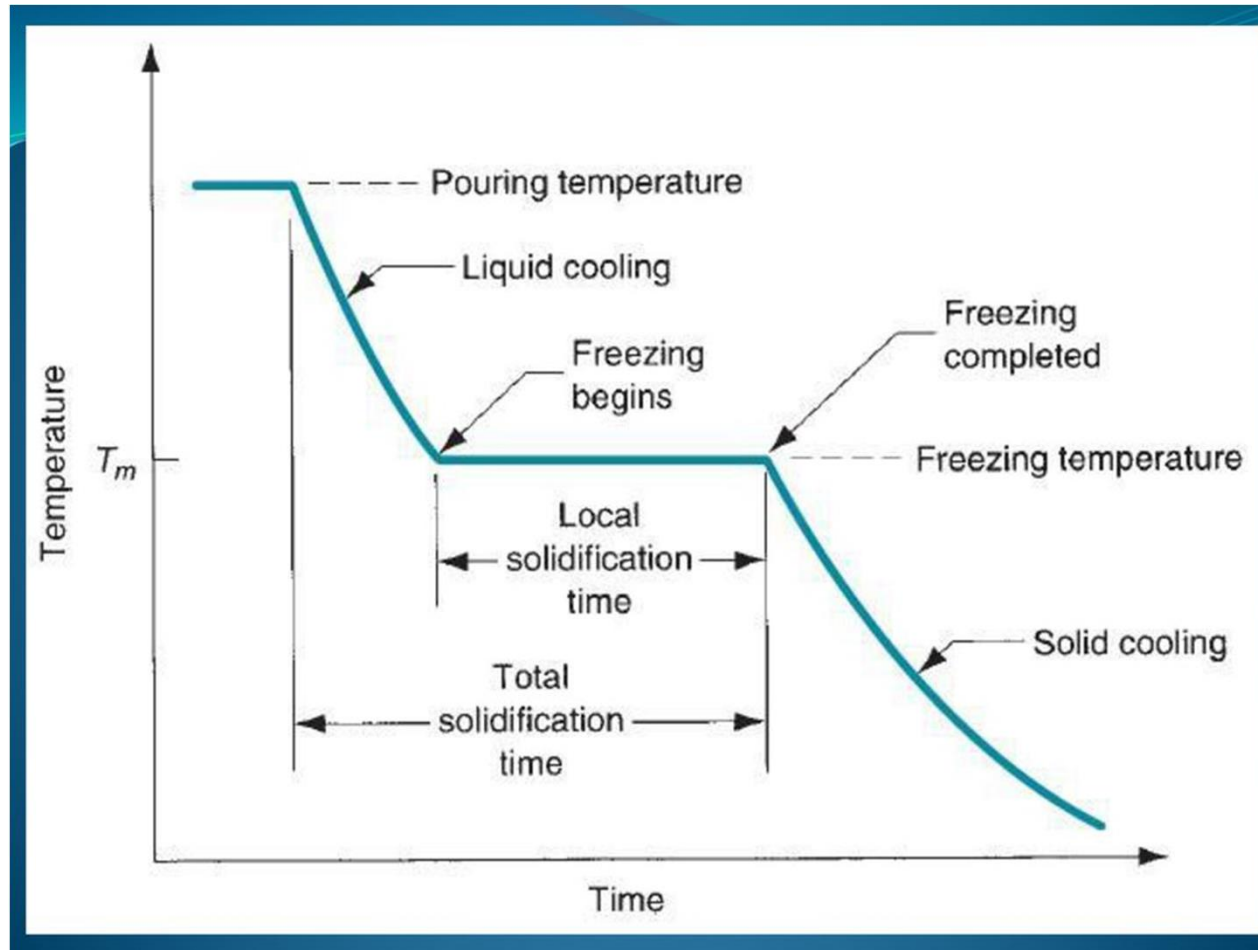
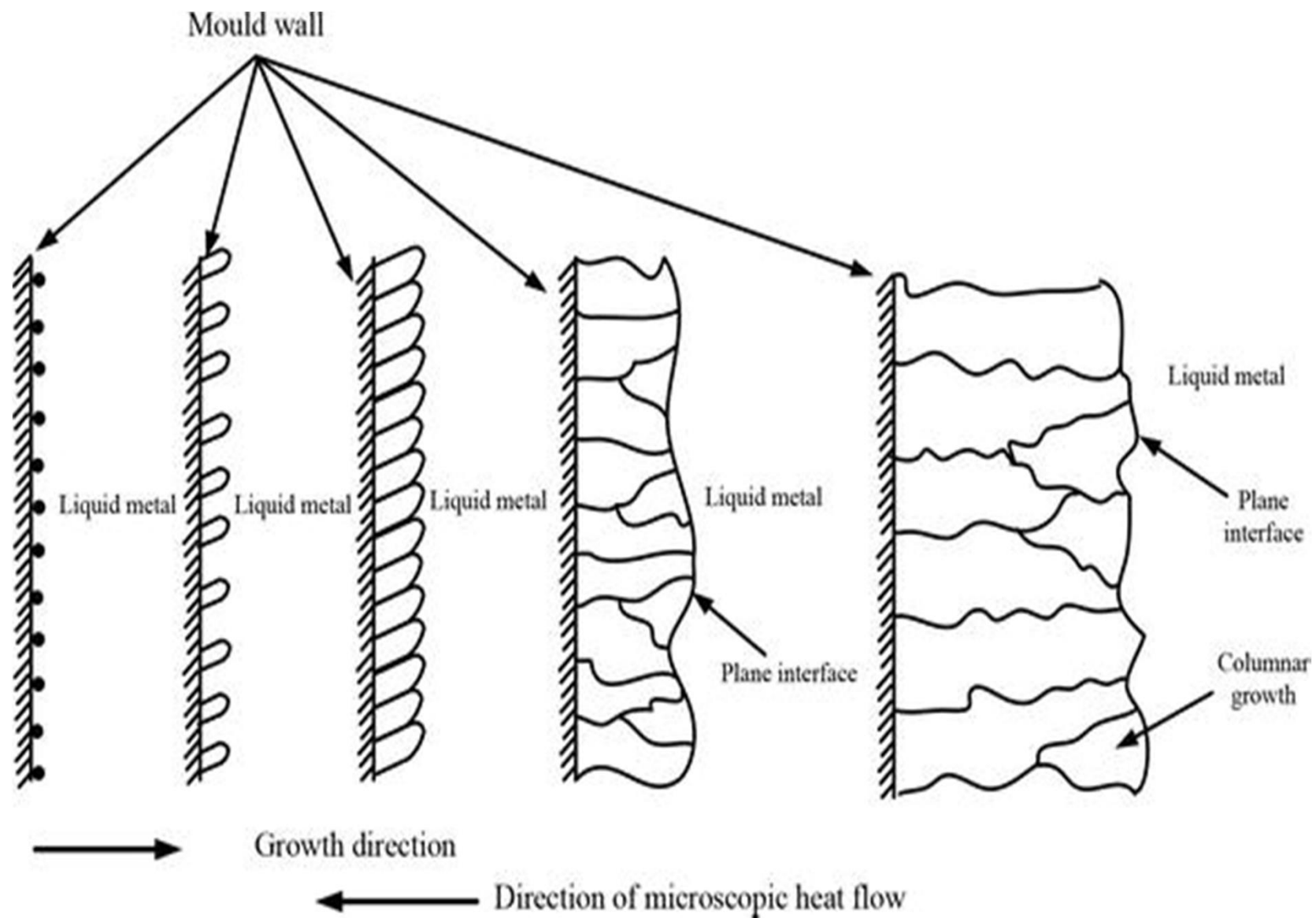


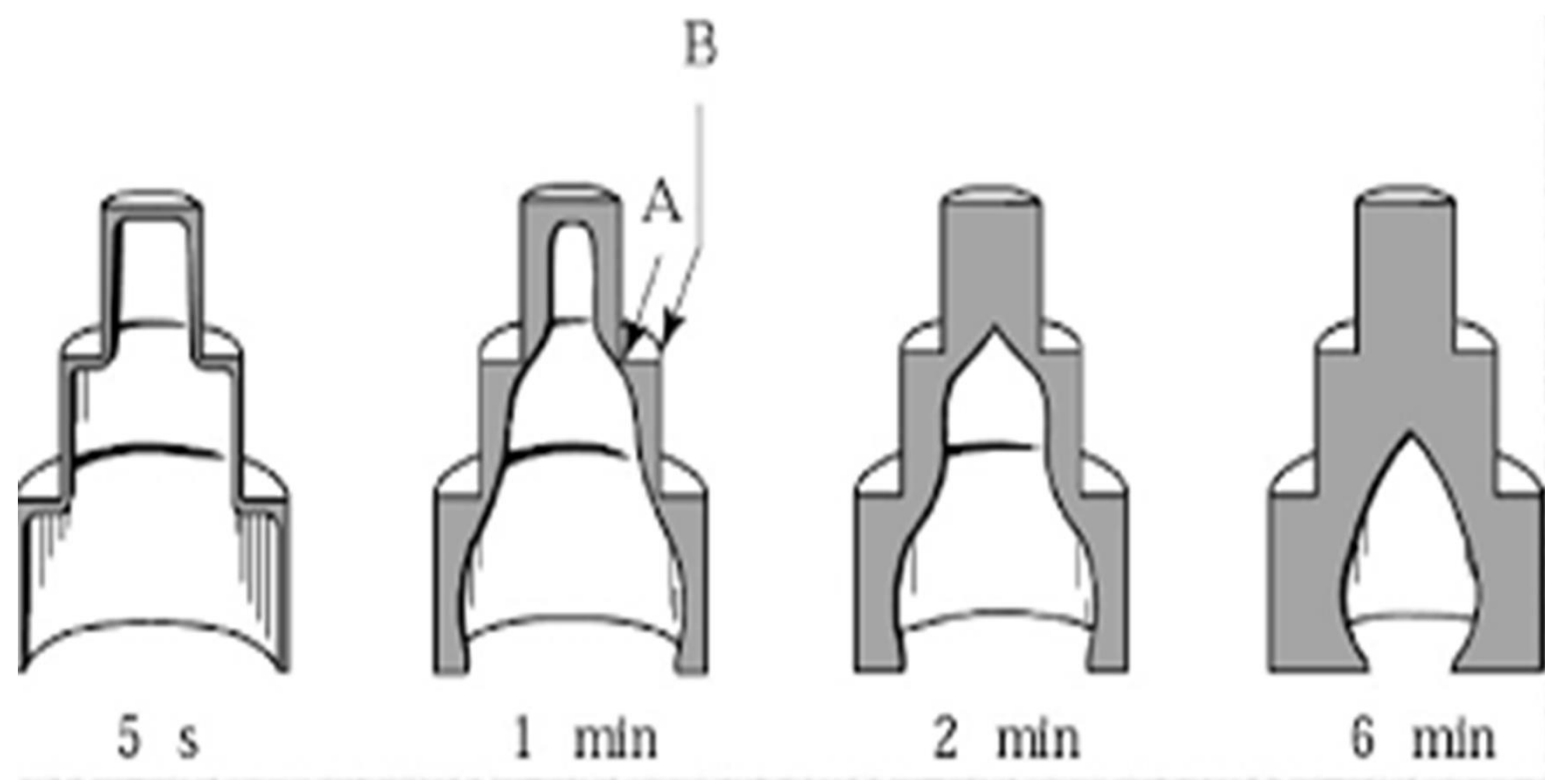
Solidification of Metals

- After pouring molten metal into a mold, a series of events takes place during the solidification of the metal and cooling to room temperature.
- These events greatly influence the size, shape uniformity, and chemical composition of the grains formed throughout the casting, which in turn influence its over all properties.

Solidification process







Solidify molten metal

Chvorinov's rule: the time needed for the molten metal to completely solidify in the mold cavity

$$TST = C_m \left(\frac{V}{A} \right)^n$$

TST:	total solidification time, min
V:	volume of the casting, in. ³ (cm ³)
A:	surface area of the casting, in. ² (cm ²)
N:	exponent, 2
C _m :	mold constant, min.in. ² (min/cm ²)

Classification of casting

